Quaderni del Centro Studi Alpino – IV

UZI

76° CONGRESSO

15-18 settembre 2015
VITERBO

Proceedings of the 76th National Conference of the Unione Zoologica Italiana

A cura di Marzio Zapparoli, Maria Cristina Belardinelli

Università degli Studi della Tuscia
2015

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Università degli Studi della Tuscia
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Presentation

The Centro Studi ALPino (CSALP) is an administrative unit of the Università della Tuscia (Italy), whose headquarter is in Tesino plateau (Trento province), with teaching and conference facilities located mainly in Pieve Tesino and research facilities mainly in Cinte Tesino. It was established in 2003 thanks to the efforts of two professors of the Università della Tuscia, Enzo Avanzo and. Ervedo Giordano, the cooperation of the municipality of Pieve Tesino and the financial support of the government of the Trento Province. The Center is run by a management committee, appointed by the rector every three years, which includes representatives of all departments of the university.

The primary goals of CSALP are: (1) to provide logistical support for teaching and research activities in the alpine forest area; (2) to develop cooperation with local communities, national and international universities and research institutions; (3) to promote and host seminars, workshops, technical and scientific courses.

In the last ten years CSALP was involved in some research projects concerning environment monitoring and forest planning: (a) CARBOITALY (sponsor: MIUR - Italian Ministry for University and Research) aiming at the quantification of carbon sinks in forest and agriculture ecosystems; (b) MONFORINN (sponsor: Provincia Autonoma di Trento) with the goal of assess the use of high-resolution satellite images for forest monitoring; (c) PFIT Asiago e Cadore, Longaronese, Zoldano (sponsor: Regione Veneto) with the aim of developing innovative methods for inventory and decision making process in forest planning; (d) C_FORSAT (sponsor MIUR) with the aim of quantifying both gross (GPP) and net primary production (NPP) of Italian forest ecosystems with a spatial resolution of 1 km. CSALP is also part of MOUNTFOR, a Project Center of the European Forest institute, which acts as a network of national and international universities and research institutes to promote research activities in all the aspects of mountain forests.

Luigi Portoghesi
President of the CSALP Management
Committee

Introduction

Dear Colleagues,

on behalf of the Organizing and Scientific committees I would like to thank all participants to the 76th National Congress of the Unione Zoologica Italiana for having come so numerous to our annual meeting. It is a great honour for us that this important event is held here for the first time in Viterbo, at the University of Tuscia, in the prestigious medieval complex of S. Maria in Gradi. This historical building represents a significant example of how history and innovation can be fruitfully combined. History and innovation are the leitmotif of our young University, in which Zoology and Comparative Anatomy have played a remarkable role – both in cultural and scientific terms – ever since its foundation. The 76th National Congress of the Unione Zoologica Italiana intends to offer to the participants the opportunity to experience an amazing intellectual venture in the diversity and quality of the scientific knowledge that make our Society so rich. In this perspective, the 76th National Congress will approach such thought provoking themes as the ones planned for the following three Symposia:

1. Reproductive strategies: behavioral, morpho-functional and evolutionary aspects
3. Physiological aspects and internal defense system: evolutionary adaptations and applications in biotechnology
2. The modern systematics: between structural morphology and molecular approaches

Aim of these Symposia is to review the state-of-the-art of some topics and the innovative aspects that characterize recent research in Animal Biology. We should also emphasize how innovation does depend on our ability to provide scientifically sound and ethically sustainable interpretations, in highlighting the variety of techniques currently employed to unravel key aspects of Life. The 76th Congress will end with a Round Table primarily focusing on the public use of Protected Areas in Italy. This should provide the opportunity to discuss some of the highly debated topics on Nature Conservation and sustainable use of natural resources, allowing to evaluate pros *and* cons *of the present nature/nurture relationship.*

The possibility to compare new ideas on such topics as they freely emerge in the discussion constitutes an essential ingredient for encouraging interest, engagement and participation in the activity of our Society and for providing new guide lines for the disciplines of Zoology and Comparative Anatomy. Special attention has been given to young researchers. Of the 150 scientists attending this Congress, over 30% are PhD students or Research assistants. Among them, ten will be invited to present their work in the "9th UZI Awards for young Researchers" session, and four will receive the prize awarded. Recognition of these excellences is meant to be an incentive for strengthening their passion in Zoology and Comparative Anatomy and to encourage them to remain active in spite of present difficulties.

Given these premises, the annual Congress of our Society is not only an important platform for strengthening our collaborations, as usually, but also the scenario where new relationships and new developmental strategies could be planned and pursued. It is therefore with great pleasure and enthusiasm that we wish you all a fruitful and interesting stay at 76th National Congress of the Unione Zoologica Italiana.

Viterbo, September 15-18, 2015

Anna Maria Fausto
President of the Organizing Committee
76th National Congress
of the Unione Zoologica Italiana

Symposium III

The modern systematics: between structural morphology and molecular approaches

Coordinators:
Romolo Fochetti, Marzio Zapparoli

Oral presentations

CLAUDIA PALESTRINI, ENRICO BARBERO, ANGELA ROGGERO

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MODULARIZED TRAITS AND PHYLOGENETIC COMBINED ANALYSIS IN TWO DUNG BEETLES SPECIES-GROUPS OF ONTHOPHAGINE (COLEOPTERA, SCARABAEIDAE)

Arthropod insects are ideal and complicated model systems for studying phenotypical patterns in external and internal body traits. The present research was focused on the analysis of the phylogenetic relationships between dung beetles species-groups of Afrotropical onthophagine. The main aim was to test the applicability of a dataset of morphological continuous and discrete characters, desumed by employing different methodological approaches, and treated as distinct modules. The quantitative morphological variations were captured by the geometric morphometric method that proved to be a very useful tool to gain even small shape differences of several anatomical traits. In this framework, we examined the shape patterns of head, pronotum, right elytron, mouthpars (i.e., mentum and epipharynx), and genitalia of both sexes. The modularized traits were analyzed together by an innovative method, i.e. the combined phylogenetic approach (GOLOBOFF *et al.*, 2006). The use of quantitative data in phylogenetic analysis is a novelty since formerly those data could not be employed "just as they were" but were discretized during the analysis (GOLD *et al.*, 2014). The formalization of the combined approach (CATALANO *et al.*, 2010; GOLOBOFF and CATALANO, 2010) has opened up huge opportunities for the use of extremely diverse characters that were hitherto inapplicable to the phylogenetic analyses. Subsequently, the evolutionary and biogeographic patterns of these species was examined by combining the phylogenetic results with the distribution data (i.e., the georeferenced collection localities) to define what, and how, speciation processes have led to the current biogeographical ranges.

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